File compression

File compression - its method for compressing files, making their size smaller, also compression used for creating backups. For example you may know file extensions like a .zip, .rar, .7z, .tar, .tar.gz, .dmg. In windows/linux/macos you can use built-in software to make archive files with your datas.

Types of file compression

Since there are two main types of compression, some of them will be better and some worse.

* First type is Lossless compression - The better type of compression because in the future you can return the compressed file to the original version, because it reconstructs all the data in a convenient format, less than the lossy type, to reduce the size without losing quality. A compressed file is not always small, it is usually used for text files, data files, audio files and images because it is much easier for them to do this.
* Second type is Lossy - this is the opposite type to lossless, because you will not get the exact original after compression, because the quality will be lost due to the lack of data that the algorithm has changed, or even removed altogether. Great reduction of data - due to this, a small file weight is formed, usually less than the weight of the original. Commonly used to compress multimedia such as .mp4 h264 videos and JPEG files

Advantages and disadvantages of lossy data compression

Advantages: Significant reduction of file size but at the cost of loss in the quality. Tools and plugins available help in choosing the level of compression.

• Disadvantages: Quality of compressed image degrades with high ratio of compression. Users can not get back the original image after compression.

Algorithm and index are used in file compression

A compression algorithm is used to find and index repeated words or patterns (or sections of words) within the data. Wherever they occur in the data, the indexed words/patterns are replaced with numerical values. The index will need to be stored with the data to allow decompression with no loss of data.

List of File Types – that use compression

Compressed file extensions: .7z, .arj, .deb, .pgk, .rar, .rmp, .tar.gz, .z, .zip, .rar

Audio: .aif, .cda, .mid, .midi, .mp3, .mpa, .ogg, .wav, .wma, .wpl

Disc: .bin, .dmg, .iso, .toast, .vcd

DBs: .csv, dat, .db, .dbf, .log, .mdb, .tar, .xml, .sql

Executable: .apk, .bat, .bin, .com, .exe, .jar, .msi, .py, .wsf

Fonts: .fnt, .fon, .otf, .ttf, .wof

Images: .ai, .bmp, .gif, .ico, .jpg, .jpeg, .png, .ps, .psd, .svg, .tif, .tiff

Internet-related: .aspx, .cer, .cgi, .css, .html, .htm, .js, .jsp, .part, .php, .py, .rss, .xhtml

Presentations: .key, .odp, .pps, .ppt, .pptx

Programming files: .c, .pl, .class, .cpp, .cs, .h, .java, .php, .py, .sh, .swift etc

Video: .3g2, .3gp, .avi, .flv, .h264, .m4v, .mkv, .mov, .mp4, .mpeg, .wmv

System: .bak, .cab, .cfg, .cpl, .cur, .dll, .dmp, .ico, .drv, .lmk, .msi, .sys, .tmp

Sources:

<https://www.rfwireless-world.com/Terminology/Advantages-and-Disadvantages-of-Data-Compression.html>

<https://www.computerscience.gcse.guru/theory/data-compression>

https://www.computerhope.com/issues/ch001789.htm